

Psittacosis

(Also known as Parrot Fever and Ornithosis)

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Chlamydia psittaci is the bacterium that causes psittacosis.

B. Clinical Description

The clinical presentation of psittacosis can include fever, headache, rash, myalgia (muscle aches), chills, and upper or lower respiratory tract disease. Systemic illness can occur with pneumonia. A cough may or may not be present, and respiratory symptoms often seem milder than what would be expected based on chest x-ray findings. Human disease can be severe (including encephalitis and myocarditis), especially in untreated elderly people, although it is usually mild or moderate for others. Relapses of illness may occur.

C. Reservoirs

C. psittaci is found primarily in psittacine birds (parrots, parakeets, macaws, love birds, and cockatoos); pigeons and some poultry (turkeys, geese and ducks) may also shed the infectious agent.

D. Modes of Transmission

Human illness occurs from inhalation of the bacteria in dried droppings, secretions, and dust from feathers of infected birds. Many seemingly healthy birds may shed the agent when stressed by crowding or transport. Pet birds are often implicated, especially when owners clean a cage with dried droppings. Occupational exposure can also occur when workers are exposed to areas with contaminated dust during clean up, repair or demolition. Laboratory infections have occurred as well. Farms or rendering plants may also be a source of exposure for workers. *C. psittaci* are resistant to drying and can stay infectious for several months. Person-to-person transmission (through paroxysmal coughing during acute illness) has rarely been reported.

E. Incubation Period

The incubation period for psittacosis can range from 1–4 weeks, but it is usually 7 to 14 days.

F. Period of Communicability or Infectious Period

Infected birds, including those that appear to be healthy, can be lifetime carriers or have continuous or intermittent shedding periods of weeks or even months. If humans are contagious at all, it is during paroxysmal coughing with acute illness.

G. Epidemiology

Psittacosis occurs worldwide and sporadically in any season. Most human cases are sporadic and are usually confined within families. Human outbreaks of psittacosis occasionally occur in individual households, pet shops, aviaries, and avian exhibits in zoos. Outbreaks among birds can occur in poultry flocks or other groups of birds such as in pet stores. Quarantine of imported birds and treatment of birds with antibiotics are used to reduce the risk of disease transmission from birds.

2) Reporting Criteria And Laboratory Testing Services

A. What to Report to the Massachusetts Department of Public Health

Report any of the following:

- Isolation of *C. psittaci* from respiratory secretions; or
- Fourfold or greater increase in antibody against *C. psittaci* by complement fixation (CF); or microimmunofluorescence (MIF) to a reciprocal titer of ≥ 32 between paired acute- and convalescent-phase serum specimens; or
- Presence of immunoglobulin M antibody (IgM) against *C. psittaci* by MIF to a reciprocal titer of ≥ 16 .

Note: See Section 3) C below for information on how to report a case.

B. Laboratory Testing Services Available

The Massachusetts State Laboratory Institute, Virus Serology Laboratory provides serologic testing for human specimens by CF (≥ 2 ml of serum required). For more information on submitting specimens contact the Virus Serology Laboratory at (617) 983-6396.

3) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To help identify the source (*e.g.*, pet stores, workers in a facility with excess dust or hidden bird droppings) and prevent further transmission.
- To identify and control outbreaks.

B. Laboratory and Healthcare Provider Reporting Requirements

Refer to the lists of reportable diseases (at the end of this manual's Introduction) for information.

C. Local Board of Health Responsibilities

1. Reporting Requirements

Massachusetts Department of Public Health (MDPH) regulations (*105 CMR 300.000*) stipulate that each local board of health (LBOH) must report the occurrence of any case of psittacosis, as defined by the reporting criteria in Section 2) A above. Current requirements are that cases be reported to the MDPH Division of Epidemiology and Immunization, Surveillance Program using an official CDC *Psittacosis Case Surveillance Report* form (in Appendix A). Refer to the *Local Board of Health Reporting Timeline* (at the end of this manual's introductory section) for information on prioritization and timeliness requirements of reporting and case investigation.

2. Case Investigation

- a. It is the LBOH responsibility to complete a CDC *Psittacosis Case Surveillance Report* form (in Appendix A) by interviewing the case and others who may be able to provide pertinent information. Much of the information required on the form can be obtained from the case's healthcare provider or the medical record.
- b. Use the following guidelines to assist you in completing the form:
 - 1) Accurately record the demographic information (including full name and address), date of symptom onset, healthcare provider information, whether hospitalized (including location and associated dates), therapy received, and outcome of disease (*e.g.*, recovered, died).

- 2) Diagnostic tests: Complete questions on the type(s), date(s), and result(s) of any diagnostic tests performed.
 - 3) Exposure history: Use the approximate incubation period range for psittacosis (1–4 weeks). Specifically, focus on the period beginning about 1 week prior to the case's onset date back to approximately 4 weeks before onset for the following exposures:
 - a) Occupation/duties: Determine the occupation of the case. Determine whether the case had any occupational exposure to birds or other animals (*e.g.*, farmer, pet store worker).
 - b) Bird contact: Ask the case about contact with birds (psittacine birds, pigeons, domestic fowl, or other birds). If possible, indicate the type(s), number of bird(s), and health of the bird(s) to which the case was exposed.
 - c) Contact with a human case of psittacosis: Ask the case if he/she had recent contact with a person who has/had pneumonia.
 - d) Indicate where and when any of the above exposures occurred.
 - 4) Investigation of source: Record any information regarding the testing of birds suspected as the case's source of infection.
 - 5) If you have made several attempts to obtain case information, but have been unsuccessful (*e.g.*, the case or healthcare provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as you have gathered. Please note on the form the reason why it could not be filled out completely.
- c. After completing the form, attach lab report(s) and mail (in an envelope marked "Confidential") to the MDPH Division of Epidemiology and Immunization, Surveillance Program. The mailing address is:
MDPH, Division of Epidemiology and Immunization
Surveillance Program, Room 241
305 South Street
Jamaica Plain, MA 02130
- d. Institution of disease control measures is an integral part of case investigation. It is the LBOH responsibility to understand, and, if necessary, institute the control guidelines listed below in Section 4), Controlling Further Spread.

4) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements (105 CMR 300.200)

Minimum Period of Isolation of Patient

Until clinical recovery.

Minimum Period of Quarantine of Contacts

Personal surveillance. (See Glossary for definition.)

B. Protection of Contacts of a Case

None.

C. Managing Special Situations

Disease in Birds

Psittacosis diagnosed in a bird is reportable to the Massachusetts Department of Food and Agriculture, Bureau of Animal Health (617-626-1795). They in turn will notify the Division of Epidemiology and Immunization and the local board of health. If evidence suggests that humans exposed to infected birds have become sick with psittacosis, the local board of health will be asked to assist the Division of Epidemiology and Immunization in

investigating the situation, ensuring that any sick persons receive medical attention, and educating exposed individuals about their potential risk. In cases without human illness, the local board of health should be aware of the situation so that concerned individuals can be given information about psittacosis, their risk of exposure, and the need to see a physician if they have been exposed and develop respiratory illness.

When a bird in a pet store or one recently purchased from a pet store has been diagnosed with psittacosis, whether or not human cases have occurred as a result of exposure to the diseased bird, control measures in birds will be instituted by the Bureau of Animal Health. These measures include quarantine and treating exposed birds and properly disinfecting cages and other surfaces. Other control measures, including notifying the pet store owner and workers of the diagnosis and their possible risk of disease, and notifying the public who may have visited the store through the posting of public health notices at the store, would be made in collaboration with the Division of Epidemiology and Immunization. Also, depending on the situation, the Division of Epidemiology and Immunization may contact individuals who have purchased birds from the facility to inform them about psittacosis, the possibility that their birds may be carriers, and the potential risks to their health.

In addition to pet shops, there are other high-risk environments in which psittacosis can occur (*e.g.*, poultry farms). In the situation where a diseased bird was identified, control measures similar to those described above (*e.g.*, quarantine and treating exposed birds, disinfecting the animal's environment and notifying exposed individuals about their disease risk) would be instituted by the Bureau of Animal Health in collaboration with the Division of Epidemiology and Immunization.

For any situation or questions involving the disease in birds, contact the Bureau of Animal Health at (617) 626-1795 for more information. For information about the risk to humans, contact the Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850.

Reported Incidence Is Higher than Usual/Outbreak Suspected

If you suspect an outbreak, investigate to determine the source of infection and mode of transmission. A common vehicle, such as a cluster of sick birds in a pet store, should be sought and applicable preventive or control measures should be instituted. See Section 4) C, Disease in Birds, above. Consult with the epidemiologist on-call at the Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850. The Division can help determine a course of action to prevent further cases and can perform surveillance for cases that may cross several town lines and therefore be difficult to identify at a local level.

D. Preventive Measures

Environmental Measures

See Section 4) C, Disease in Birds, above.

Personal Preventive Measures/Education

To avoid exposure MDPH recommends:

- Obtain birds only from a licensed pet store or aviary.
- Pet owners and animal handlers should be made aware of the dangers of household or occupational exposure to infected birds and the risk of inhalation of dried bird droppings, even from seemingly healthy birds.
- Medical personnel who take care of people in poultry processing plants or other workers in high-risk occupations should learn to include psittacosis in their differential diagnosis for workers who become sick with febrile illness and myalgia.
- Psittacine birds that are bought, traded, or otherwise procured should be raised and handled in a way that prohibits psittacosis spread. Tetracycline can be used to control or prevent disease in birds, although treatment failures can occur.

- Any pet stores, farms, or processing plants that are epidemiologically linked to human psittacosis should be part of a surveillance effort to identify other cases. Any infected birds should be treated or destroyed, and the environs should be thoroughly disinfected.

ADDITIONAL INFORMATION

The following is the formal Centers for Disease Control and Prevention (CDC) surveillance case definition for psittacosis. It is provided for your information only and should not affect the investigation or reporting of a case that fulfills the criteria in Section 2) A. (CDC case definitions are used by the state health department and CDC to maintain uniform standards for national reporting.) For reporting to the MDPH always use the criteria outlined in Section 2) A.

Clinical description

An illness characterized by fever, chills, headache, photophobia, cough and myalgia.

Laboratory criteria for diagnosis

- Isolation of *C. psittaci* from respiratory secretions, or
- Fourfold or greater increase in antibody against *C. psittaci* by complement fixation (CF) or microimmunofluorescence (MIF) to a reciprocal titer of ≥ 32 between paired acute- and convalescent-phase serum specimens or
- Presence of immunoglobulin M antibody (IgM) against *C. psittaci* by MIF to a reciprocal titer of ≥ 16 .

Case classification

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (e.g., *C. psittaci* titer of ≥ 32 in one or more serum specimens obtained after onset of symptoms).

Confirmed: a clinically compatible case that is laboratory confirmed.

REFERENCES

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CDC. Case Definitions for Infectious Conditions Under Public Health Surveillance, *MMWR*. 1997; 46:RR-10.

Chin, J., ed., *Control of Communicable Diseases Manual, 17th Edition*. Washington, DC, American Public Health Association, 2000.

MDPH. *Regulation 105 CMR 300.000: Reportable Diseases and Isolation and Quarantine Requirements*. MDPH, Promulgated November 1998, (Printed July 1999).

National Association of State Public Health Veterinarians. *Compendium of Measures to Control Chlamydia psittaci Infection among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis)*, 1999. National Association of State Public Health Veterinarians, Inc., 1999.

Oregon Health Division. *Investigative Guidelines: Psittacosis*. Oregon Health Division, February 1995.